BRIGHAM HEALTH
BRIGHAM AND WOMEN'S HOSPITAL

HARVARD MEDICAL SCHOOL

AMSER Case of the Month: May 2020

47 year old male with a history of metastatic rectal cancer presents with dyspnea and fever

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Patient Presentation

- HPI: 47yo male presents to oncologist with dyspnea, low grade fever. Denies recent travel, sick contacts, urinary symptoms, chest pain.
- Medical History: Hypertension, rectal cancer with liver and lung metastases on chemo, last infusion 5 days prior
- Surgical History: Palliative Lower Anterior Resection resulting in colostomy in 2018
- Medications: Chemo (FOLOX+Avastin), Atenolol, Oxycodone, Dexamethasone
- Physical Exam:
  BP 171/113, HR 92, T 98.2 °F, RR 18, SpO2 100% RA, BMI 25.12
  Pulmonary: Lung sounds decreased bilaterally. No dullness to percussion, wheezes, or crackles.
  Abdomen: Bowel sounds present.
- Labs:
  WBC 2.82 (3.81-8.94 K/uL); Hgb 12.2 (12.5-16.3 g/dL); Plt 256 (152-440 K/uL);
  MCV 77.9 (79-97 fL); CEA 11,358 (0-3.7ng/mL)

What Imaging Should We Order?

ACR Appropriateness Criteria for Acute Respiratory Illness in Immunocompromised Patients

Variant 1: **Acute respiratory illness in immunocompromised patients. Cough, dyspnea, chest pain, or fever. Initial imaging.**

Procedure	Appropriateness Category	Relative Radiation Level
Radiography chest	Usually Appropriate	☢
CT chest with IV contrast	May Be Appropriate	☢☢☢
CT chest without IV contrast	May Be Appropriate	☢☢☢
MRI chest without and with IV contrast	Usually Not Appropriate	O
MRI chest without IV contrast	Usually Not Appropriate	O
CT chest without and with IV contrast	Usually Not Appropriate	☢☢☢
FDG-PET/CT skull base to mid-thigh	Usually Not Appropriate	☢☢☢☢

This imaging modality was ordered by the Oncologist

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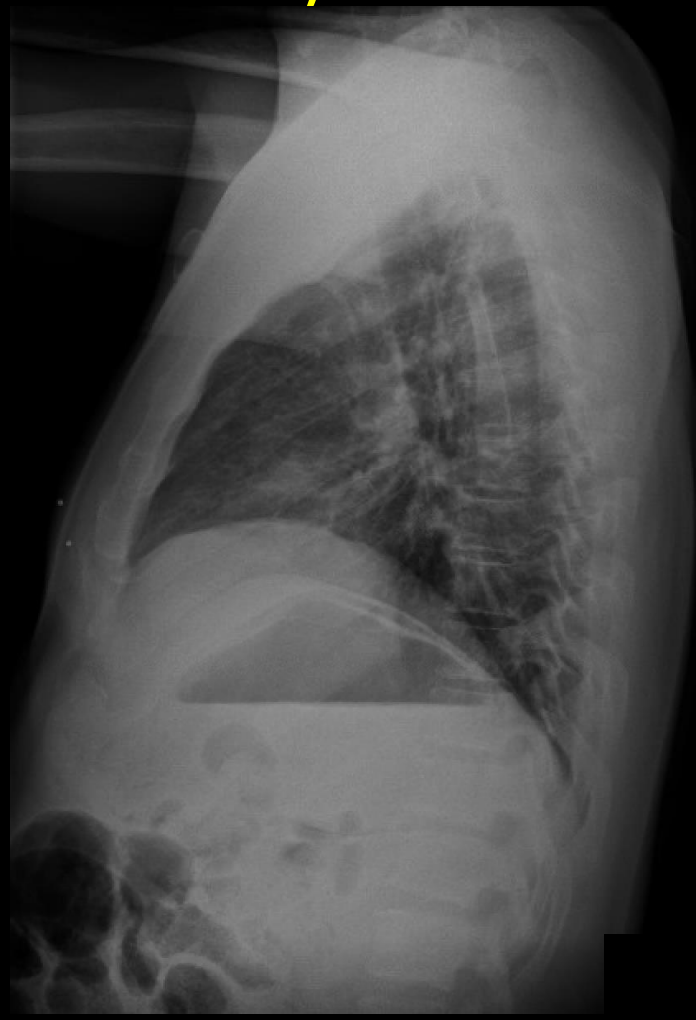
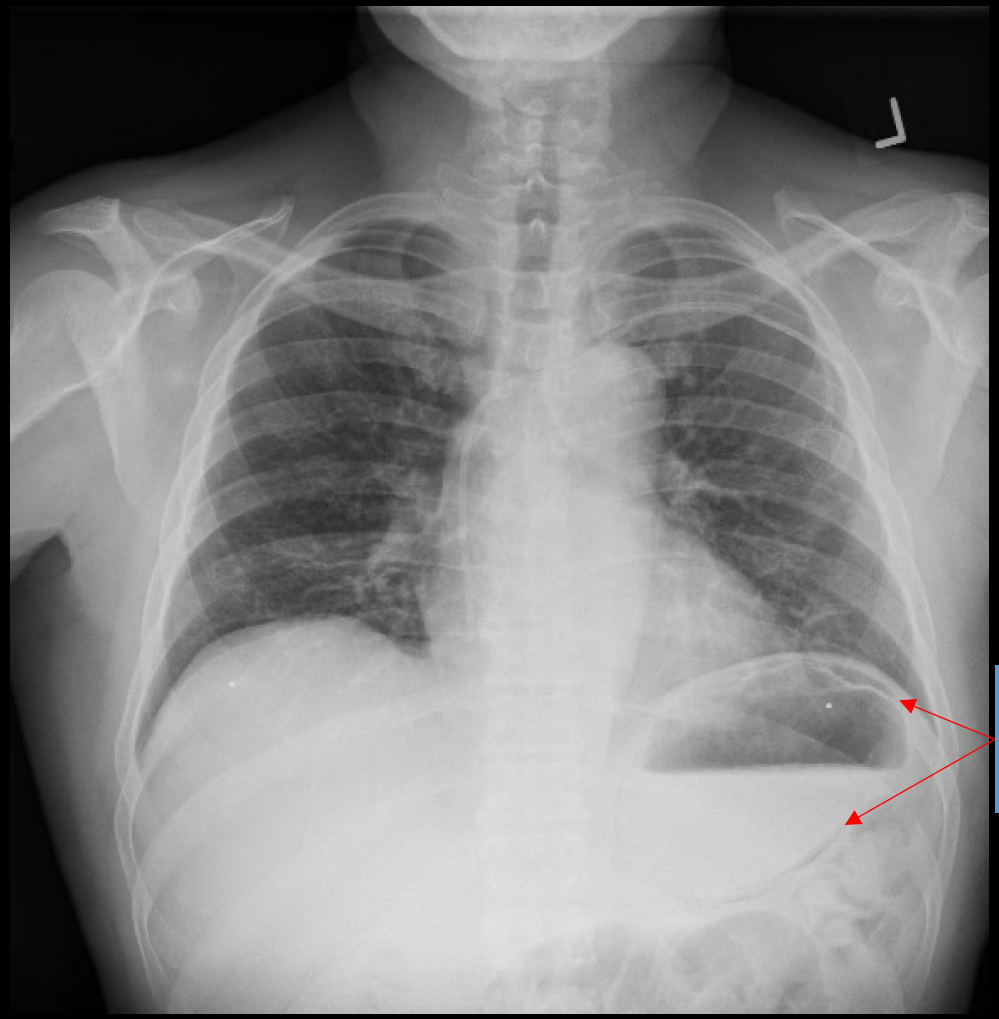
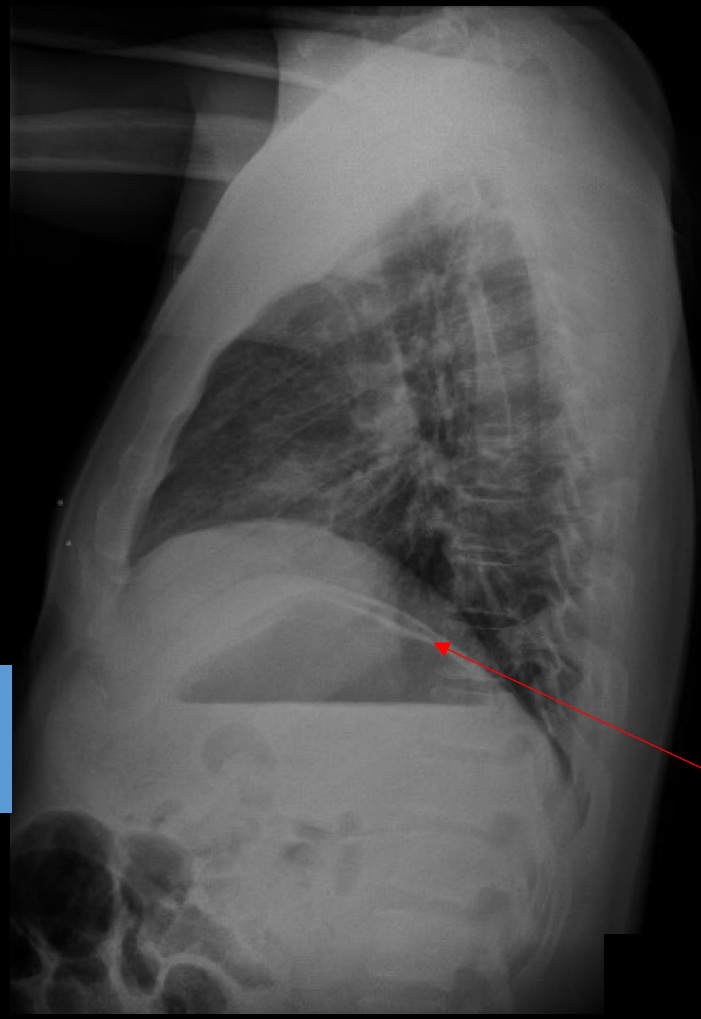
Chest X-Ray PA and Lateral Findings (unlabeled)



Findings (labeled)



Circumferential lucency around the stomach



Circumferential lucency below the diaphragm

These findings raised concern for Gastric Pneumatosis and a CT scan was recommended for further evaluation

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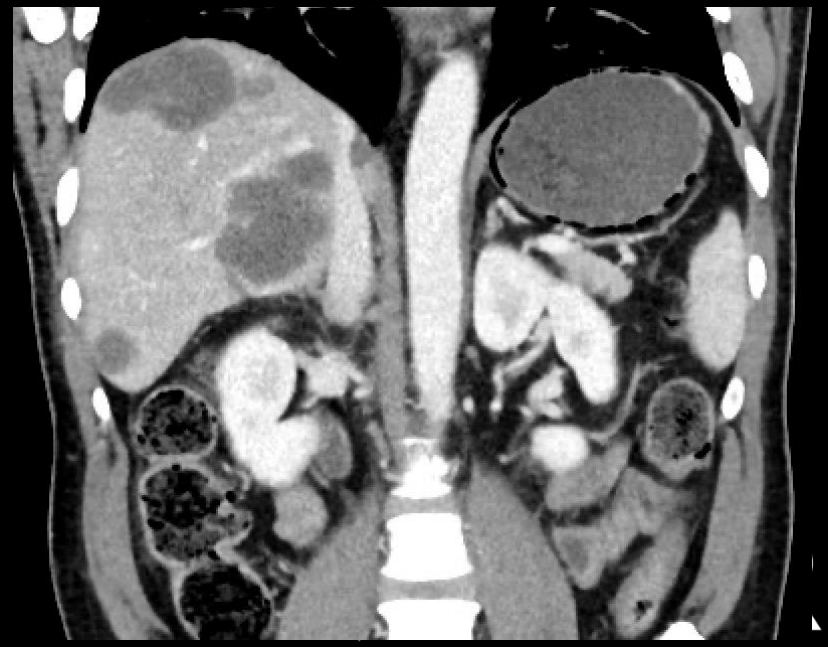
Contrast enhanced CT Abdomen/Pelvis Findings (unlabeled)

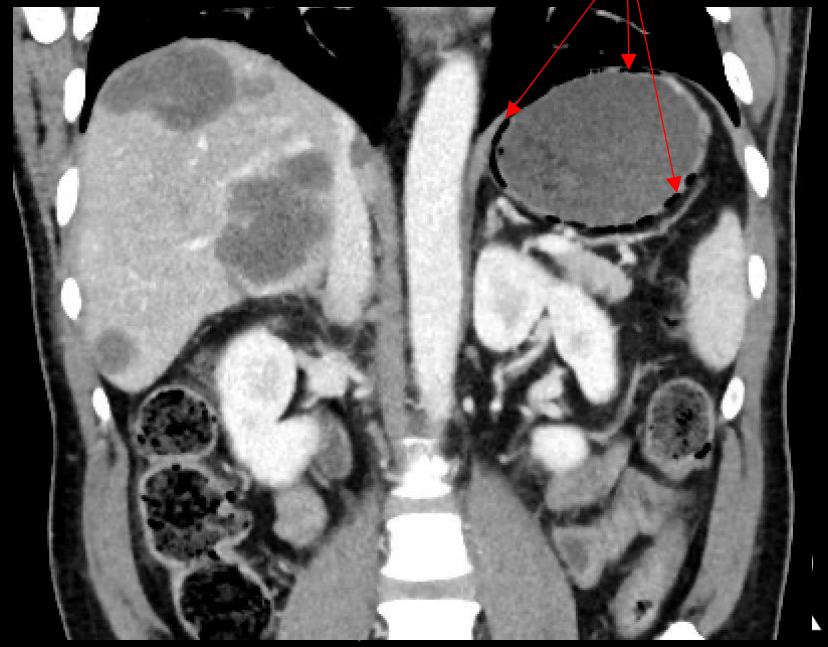


Findings (Labeled)

Axial slice, soft tissue: Multiple low attenuation hepatic lesions consistent with metastases

Axial slice, soft tissue: Air in Gastric Wall

Coronal slice, soft tissue: Air in Gastric Wall



Axial slice, lung window: Air in Gastric Wall

Final Dx:

Gastric Pneumatosis

Case Discussion

Gastric Pneumatosis is gas in the gastric wall. It is broken into 2 categories. Gastric Emphysema is usually asymptomatic and due to a mechanical etiology. Emphysematous Gastritis is serious and usually caused by a bacterial infection in the gastric wall.

Etiology of air in the gastric wall:

- Gastric etiology:
  - Infectious
  - Ischemic
  - Toxic ingestion
  - Increased intraluminal pressure (Severe vomiting, endoscopy, bowel obstruction, etc.)
  - Perforated Gastric ulcer
  - Trauma
  - Idiopathic
- Extragastric etiology:
  - Small Bowel Ischemia
  - Large Bowel Ischemia
  - Gangrenous Cholecystitis
  - Dissection of pulmonary gas

Case Discussion

Clinical Presentation:

Most patients are asymptomatic and found incidentally. However, common signs and symptoms include vomiting, abdominal distention, abdominal pain, weight loss and diarrhea.

Radiographic features:

Gastric Pneumatosis can be detected on plain films, CT or MRI, but the gold standard for diagnosis is contrast enhanced CT. Characteristically it appears as linear, circular or circumferential gas in the gastric wall.

Case Discussion

Therapy:

The key to resolving Gastric Pneumatosis revolves around the identification and treatment of the underlying etiology. However, cases with an unclear etiology are categorized into:

Asymptomatic:

- Continue to image every 1-3 months until the air resolves

Mild Symptoms:

- Start antibiotics and elemental diet.

Mod-Severe Symptoms:

- Start antibiotics, elemental diet, oxygen and hyperbaric treatment.

Surgery is reserved for the most extreme conditions when the disease does not respond to medical management.

Our patient: His gastric pneumatosis resolved without establishing a clear etiology, although it was speculated that his chemotherapy had caused severe vomiting.

References:

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Goldberg, Eric and Lamont, J Thomas. Pneumatosis Intestinalis. Available at https://www.uptodate.com/contents/pneumatosis-intestinalis?csi=f4bfbe80-ecb8-4167-a281-7223c3fb67e7&source=contentShare. Accessed March 30, 2020.

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